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ABSTRACT

Computer-output microfilm (COM) is used at the University of Wisconsin-Stout Library to generate reports from its major machine readable data bases. Conditions indicating the need to convert to COM include existence of a machine readable data base and high cost of report production. Advantages and disadvantages must also be considered before deciding to produce COM internal and external reports. After choosing COM, decisions must be made regarding: (1) type of microform, i.e., roll or fiche, (2) type of indexing technique, (3) positive or negative film, (4) reduction ratio, (5) type of film, i.e., silver, Diazo, or Vesicular, and (6) selection of a COM service bureau. The University of Wisconsin-Stout Library uses microfiche, 42 reduction ratio, and silver, negative film. Other departments of the University also use COM reports, providing additional access to microfiche readers. COM has proven to be a powerful tool for producing and distributing library information at a relatively low cost. (KP)

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COM: DECISIONS AND APPLICATIONS IN A SMALL UNIVERSITY LIBRARY

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This paper describes the decisions required when a library considers COM. The advantages and disadvantages of COM are outlined. Decisions regarding the use of roll film or fiche, positive vs. negative images, reduction ratio and type of film and selection of a service bureau are described. Practical decisions and applications in a small university are discussed.

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BACKGROUND

During the late 1960's the University of Wisconsin-Stout, began developing a variety of machine readable data bases. In the ensuing years, the number and size of these data bases has continued to grow. As of this writing, the major data bases consist of a shelf list, periodical holdings, government documents shelf list, fourteen keyword indexes, several non-print media catalogs and an aquisition file. The library is currently generating over 60 reports from these data bases.

Early in 1973, the library completed conversion of its shelf list to machine readable form. This was by far the largest data base consisting of over fifty million characters of data. The long awaited day when the library could produce reports from the shelf list had arrived. It was, however, more of a time for reflection than a cause for rejoicing. It soon became evident that the costs (in terms of computer time, paper and distribution) for generating reports from a data base of this size would be prohibitive. The library had already encountered resistance from the computer center because of the large number of reports being generated particularly when more than one print run was required. At this same time problems were encountered with the production and distribution of a number of specialized catalogs. These were generated by the computer center and then printed by photo-offset. Increasing paper costs and an unknown demand resulted in production costs that were unacceptable.

It was at this point that the library staff began investigating the possibility of using computer-output microfilm (COM). In very simple terms, COM would allow the library to record computer-output directly on microfilm rather than paper. In discussions with other COM users, several service bureaus, and based upon the libraries subsequent experiences, the staff was able to identify: 1) A number of conditions which, if they existed, would indicate that COM should be seriously considered; 2) The advantages of COM; and 3) The disadvantages of COM.

CONDITIONS INDICATING COM POTENTIAL

1. The most important condition is the existence of a machine readable data base. Without this no COM work can be performed.
2. Multiple copies of a computer report are required. Five is the optimum number of paper reports that can be produced in a single print run. Additional copies require additional print runs which increase costs and resistance from the computer center.
3. Copies of reports are distributed through the mail. Large paper reports are expensive and difficult to mail.
4. Some users require complete copies of a report while others may require only a portion.
5. Reports are frequently cumulated or revised with the new report superseding the old.
6. All or large portions of the data base are frequently printed out resulting in reports of several thousand pages.
7. Patrons and staff require access to information contained in the data bases and must have copies of reports close to several work and service stations.
8. A considerable amount of staff time is spent de-collating, bursting, binding and distributing print-outs.
9. Although there is a need for access to information contained in the data base, the costs involved cannot justify an on-line system.
10. The storage of reports at service and work stations requires valuable space.
11. Staff members have taken up weight lifting in order to more effectively handle reports.
12. The costs of producing reports on paper are such that it is no longer feasible to produce the updated reports required, thus forcing staff and patrons into multiple look up situations.

ADVANTAGES OF COM

1. The programming required to convert from paper printouts to COM is relatively simple and is a one time operation. The time and complexity of this operation will largely depend on whether or not the Service Bureau has a front-end mini-computer which will allow them to process a print image tape. Normally a conversion program can be written in a few hours and a generalized program can be written to speed the conversion of a large number of print programs.
2. The savings in time required to produce a COM tape as opposed to paper printout is significant.
3. The cost of the original copies of COM reports are less than for the same report on paper.
4. The savings on duplicate copies are even more dramatic. For example, one microfiche at 48x (270 pages) can be duplicated for about 10¢.
5. Production of reports on COM allows the library to implement a demand publication program. It is not necessary to produce additional copies of the reports to meet unanticipated demand. Once the master COM report has been generated it can easily be duplicated and is never out of print.
6. The resulting report occupies approximately 2% of the space occupied by a paper printout of the same information. The 6,000 page Public Catalog Index Set on microfiche can easily be carried around in a coat pocket.
7. Access time is considerably reduced because of the ease of handling and scanning microfiche not to mention the convenience of having copies of all needed reports at your work or service station.
8. Distribution of reports is considerably easier and less costly particularly if reports are going to be mailed. As an example, seven microfiche or approximately 1900 pages of data (at 48x) can be sent in a first class letter for 13¢. In addition, mobility of the catalog is significantly enhanced. Compare for example the problems encountered by a patron desiring to take home a copy of the Public Catalog Index Set on paper (6,00 pages) and a patron who checks out a portable reader and the catalog on microfiche.

9. Production turn around time is considerably reduced particularly when compared to printed reports. It is not uncommon to achieve 1-3 day turn around time from COM service bureaus. To achieve the same schedule by conventional printing would not only be impractical, but prohibitively expensive.
10. More frequent cumulations of reports are possible because of the reduction in turn around time and costs.
11. Handling costs are considerably reduced because microforms are self contained; they require no de-collating, bursting or binding.
12. COM allows for the production and dissemination of information that would not otherwise be available because of cost or distribution problems.
13. The availability of a large numbers and sizes of characters sets is an important consideration in catalog production.

DISADVANTAGES OF COM

1. One of the most frequently cited problems with microforms is the fact you can't make notes on them. If the ability to annotate a report is an important consideration, COM should not be used.
2. COM requires that readers and/or reader printers be provided at each service or work station, where COM is to be used. This can add up to considerable expense.
3. There still remains a serious question among librarians whether or not users will accept microforms. It is one thing to secure user acceptance among a small office staff and another to implement it within a library setting.
4. The need to work with an outside service bureau requires additional time, expense and expertise on the part of the library staff. Serious problems can arise between the library and the service bureau which may affect library operations and service.

As we have already noted, there are a number of variables a library must consider in a decision to produce internal or external reports on COM. Once a decision has been made, a number of equally difficult decisions remain regarding whether to use roll or fiche, positive or negative, reduction ration and type of film. These decisions are examined in the following section.

ROLL OR FICHE

The relative merits of roll film vs. fiche have not been settled. Libraries in Great Britain have been experimenting with COM for some time and the trend seems to be to roll film.[1] In the United States most COM applications are using fiche although several major roll film applications have been announced.[2,3] Trends may change as reader technology changes and as more libraries rely solely upon microform technology for production of their public catalogs. It may well be that as libraries move to increased use of microform catalogs they will use both roll film and microfiche. Roll film provides the file integrity required for reader stations in the library and microfiche the flexibility needed for distribution.

ROLL FILM

Roll film can be produced in a variety of widths, the most common for library COM work being 16mm. Some COM generators are also capable of producing 35, 70, 82.5, and 105mm film. The author is unaware of any roll film applications in libraries other than 16mm.

Roll film is generally produced on 100 foot rolls although it can be produced in lengths ranging from a few feet to one thousand feet. Several newly announced readers are making use of 500 foot rolls of film.

Subsequent to production, roll film can be packaged in three ways. The open reel is the least expensive form from a production standpoint, but it is also the most cumbersome for the user. The recent appearance on the

market of relatively inexpensive motorized open reel readers capable of handling 500 foot reels may change this. The theory behind this system is that the complete catalog will be contained on a single reel of film. This will be loaded internally into the machine by a library staff member, thus eliminating film handling by the user. The user need only operate the advance and rewind buttons to locate the information he desires.

A second form of packaging is the cartridge. The cartridge is designed to be used with special readers. It has several advantages over the open reel. Most cartridges are self-threading and therefore, in theory, easier to use. Self-threading eliminates any handling of the film by the user, thus reducing damage to the film. Since the film is self contained in the cartridge, the problem of the user placing the film in the wrong box or winding it onto the takeup reel is eliminated.

Cartridges also have several disadvantages. Like open reel film they can not be removed from the reader without first rewinding the film. The cost of cartridge film is increased by the cost of the cartridge or in the case of reuseable cartridges the cost of removing the old film and insertion of the new. Once a particular brand of cartridge is chosen, the user limits his choice of readers or reader-printers because most cartridges are not interchangeable. This is a significant point to keep in mind if the library plans to distribute its reports to other locations on or off campus. Although the cartridge reader is self-threading, film jams do occur and are sometimes difficult, for the uninitiated to clear. In addition, readers are more expensive than for open reel film.

A third form of packaging is the cassette. The cassette features a self-contained supply and a take up reel similiar to the common audio cassette. The chief advantage of this system is the fact that the cassette can be removed from the reader at any point in the film without rewinding. It also eliminates film handling by the user. The disadvantages are: 1) Increased costs for cassette;

2) The limited number of readers and reader-printers available for cassette; 3) The fact that cassettes are not interchangeable with other readers; 4) Expense of motorized readers; and 5) Distribution problems resulting from the unique method of packaging.

Roll Film Indexing - An important consideration in selecting a roll film system is the method of accessing individual frames. It is particularly important that the indexing method selected carry through the entire system. There is little value in selecting an indexing technique if the readers that will be used are not designed to be used with the technique selected.

Flash point - The flash point consists of a combination of clear film, eye readable characters, followed by more clear film. As an example, each letter of the alphabet may appear as an eye readable character on the roll of film. As the film moves through the reader a flash of light indicates the presence of an index point. The user must then stop the film and slowly scan for the desired information.

This is one of the simplest forms of roll film indexing and one that can be used with most readers commonly found in libraries. Although easy to produce, it is not particularly efficient from the users standpoint. It can also waste a considerable amount of film depending upon the number of flashpoints, e.g., the depth of indexing. This technique can also be used quite effectively in combination with other indexing techniques.

Code Line or Bar Code - Code lines are recorded, at varying heights, between each image on the film. When the film is rapidly advanced through the reader, the lines appear to join together to form a continuous line. In another approach the same effect is produced by varying the spacing on the page. The code lines are placed in relationship to data on the film and are also keyed to an index arranged vertically on the side of the microfilm viewing screen. As the film moves through the viewer, the code line appears to move up or down the screen. When the line levels with the desired key on the index the film is stopped.

The user must then slowly scan the film to locate the desired image.

Code line is a relatively simple technique which could be adapted to many readers commonly found in libraries. It does present a number of problems; 1) Since the technique relies on an optical illusion on the screen it has a tendency to produce eye fatigue when used for prolonged periods; and 2) The code line produced by some COM generators is difficult if not impossible to see when used on high speed readers. It is suggested that the entire system be carefully tested before this technique is adopted.

Footage Counter - The footage counter is simply a technique whereby a device on the reader measures the amount of film that has passed through the reader. This is used with a manual or computer generated index to locate the approximate location on the film where the information will be found. The user then must use a slow scan to locate the information desired. This technique is available with several mechanical variations. It is most commonly used with an odometer, which records the relative position of the film numerically. Another technique operates in a fashion similiar to code line. As the film moves through the reader, it moves a pointer along an index arranged vertically on the side of the screen.

This is a relatively simple indexing technique widely used in industry. Its chief disadvantages are: 1) The amount of time to manually index each roll of film. This problem can be solved by producing a computer generated index; and 2) The calibration differences among the various types of readers can reduce the retrieval speed.

Blip Coding - The blip is a small black mark placed at the bottom of each page. As the film moves through the reader, the blips are electronically counted. Two types of page counters are available. In one the user keys in the desired page number and the reader automatically scans the page until the desired image is located. In the second, the user simply passes the film through the reader until the desired page is reached as indicated on

a page monitor. As with the footage counter, a manual or computer generated index can be provided. This is a more precise method of locating information although at a considerable increase in cost.

Binary Coding - This is the most sophisticated indexing technique available for use with roll film. Binary codes are stored between each image on the film. This allows for multiple coding of data. The user enters the desired search parameters and presses the search button. The reader then scans the file until the appropriate page or pages are found.

As on might expect, the costs of this type of retrieval system would be prohibitive in library applications requiring many reader stations. In addition the production of COM out-put requiring this type of indexing is more expensive than with previously discussed indexing techniques. It is also important that the user test a sample of the out-put on a given reader to identify potential problems with code placement and readability of the coding.

Advantages of Roll Film

1. Roll film has excellent file integrity. This is the factor most often cited for its use in library applications.
2. It can be used with a wide range of manual and automated retrieval equipment found in libraries.
3. Retrieval from medium sized files is very fast with motorized readers.
4. It provides a simple and easy method of storing medium sized files.
5. The handling of film can be minimized depending upon the system chosen.

Disadvantages of Roll Film

1. It is difficult to add supplements to roll film without regenerating the entire file.
2. Purchase of readers to handle a specific type of film container or indexing system can be very expensive.
3. It is difficult to duplicate all or part of a roll of film. Film duplicators are not commonly available in libraries.

4. Roll film is not practical for the production, distribution or duplication of short reports.
5. Most roll film readers are more difficult to use than fiche readers.
6. Retrieval speeds are slow if non-motorized readers are used.
7. Most film readers are considerably more expensive than fiche readers.
8. Few portable film readers exist, thus making it difficult for patrons to check out readers and reports for use outside the library.
9. Use of special containers or indexing techniques greatly increases the cost of a roll film.
10. Use of cartridges or cassettes considerably reduces the libraries choice of equipment because most containers are not interchangeable between different brands of equipment.
11. Some indexing methods require specialized retrieval equipment thus limiting use of the report to specific readers.

MICROFICHE

COM microfiche is produced from 105mm roll film. The film is cut into 148mm lengths to produce what is commonly described as 4 x 6 microfiche.

The packaging of microfiche is relatively simple. Normally it is placed in an envelope and is ready to use. There are a number of additional packaging devices commonly found at reader stations such as fiche trays, revolving stands and looseleaf binders. These are used to assist in maintaining file integrity. In addition there are a number of less commonly found packaging devices notably the cartridge and carousel.

The cartridge is a small plastic box into which the microfiche are slipped. Each cartridge holds up to 30 fiche. The contents of the fiche are listed on a label on the outside of the cartridge. The user inserts the cartridge into the reader, depresses several buttons and the reader retrieves the fiche and frame desired.

The chief advantage of the system is file integrity. The user does not touch the fiche, so there is little chance that fiche will be missfiled. In addition there is the speed and convenience of moving from one fiche to another. The system does have its disadvantages. The chief one being cost. Automatic retrieval units of this type start where many automatic roll film readers leave off.

A third packaging system is in reality a rather sophisticated retrieval system. Each microfiche is attached to a metal strip, which has been encoded with data. The fiche is then placed inside the reader on a carousel unit containing up to 750 fiche. In order to retrieve information from the file, the user must: 1) Look in an index to determine the fiche number and page number of the desired information. The index can either be on paper, microfiche or on line to a computer; 2) He then pushes a series of buttons which select the proper fiche from the carousel, locate the proper row and column and produce the desired page on the screen.

This device solves several problems commonly associated with microfiche: 1) It provides for rapid retrieval of information from a large file; 2) It solves the problem of file integrity. The chief disadvantages are: 1) The costs of the unit; and 2) The time and effort required to code and insert fiche into the reader.

Microfiche Indexing

Information retrieval from microfiche is generally less complex than with roll film. The retrieval process is essentially the same irrespective of the reader being used. Four steps are normally involved. First, the title of the fiche and inclusive contents are usually provided along the top of each fiche in eye readable characters. The user selects the fiche containing the desired information.

Second, the fiche is inserted between the glass flats of the viewer. There are four possible ways of inserting a fiche so the user will have to learn the proper one. Third, the user can locate the desired information by scanning the fiche or by turning to a computer generated index provided on the last frame of each fiche. The index gives the first and last citation found on each page and refers the user to the page location using a row and a column reference. Most readers provide a row and column grid index which allows a user to position a pointer on the desired page which in turn positions the page on the screen. Fourth, the user must then scan the page for the desired information. Although the procedure sounds complex, in reality it is quite simple and users have little trouble in adapting to it.

If automatic retrieval units were going to be used a computer generated fiche or paper index to the entire file would normally be produced. This would be examined to identify the proper fiche and page locations. The procedure previously discussed under cartridge and carousel packaging would then be followed.

Advantages of Microfiche

1. Fiche to fiche duplicates are economical and easy to produce, within the library, on relatively inexpensive equipment.
2. The library has the option of duplicating all or part of a report depending on need.
3. The indexing method is simple and fiche can easily be used on a wide variety of readers with no problem of incompatibility.
4. Many inexpensive table and portable readers are available on the market. Business is spending a considerable sum to develop new reading and retrieval equipment.
5. Microfiche reports can easily be checked out to library patrons for consultation at other locations.

6. It is less expensive to mail microfiche reports, than it is to mail roll film.
7. Microfiche readers are normally simply constructed with few moving parts. This results in fewer user and maintenance problems.
8. Selective updating of the file is easier with fiche. There is no need to regenerate the entire file or a supplemental file.

Disadvantages of Microfiche

1. File integrity is difficult to maintain if the report consists of a large number of fiche heavily used by the public. In addition, if partial updates of the reports are distributed to a variety of locations it cannot always be assumed that the files have been properly updated.
2. Microfiche are more susceptible to theft or loss than roll film.
3. Automatic retrieval devices which reduce the problem of file integrity are relatively expensive. They generally start at the price range where automated roll film equipment leaves off.

POSITIVE VS. NEGATIVE FILM

The library must also make a choice between positive or negative film. This is an issue which stirs considerable emotion within the micrographics industry. Unfortunately, no definitive conclusions have been reached and the resulting decision is primarily a matter of user preference. There are, however, a number of factors that should be taken into consideration.

1. Positive film is preferred by many because they find the black-on-white image more in keeping with the printed page.
2. Use of negative film tends to reduce glare and eye fatigue because less light reaches the viewing screen.
3. Use of negative film results in a more pleasing image on the screen because spots, scratches and dust are less noticable. This can also be an important consideration when duplicating film.

4. Most reader printers are set up to produce positive hardcopy from negative film.
5. The type of fiche to fiche duplicating process, if any, being used in the library. As an example, Diazo duplication is a nonreversal process, so if the master is negative the duplicate will be negative. Vesicular film is normally a reversing film. Thus producing a positive duplicate from a negative master.

REDUCTION RATIO

The reduction ratio is the ratio of the linear measurement of a document in relation to the linear measurement of the photographic image of the document. This ratio is generally expressed as 24x or 24:1, for a document reduced 24 times its original size. There has been a considerable controversy within the micrographics industry and the library profession surrounding the reduction ratio. There is no generally accepted standard with most library COM work produced at 24x, 42x, and 48x. The higher the reduction ration the more pages on a fiche e.g., 24x = 98 pages, 42x = 207 pages and 48x = 270 pages. The chief problem as far as the librarian is concerned, is the fact that most library microform readers are not capable of reading or printing images from these two extremes. Nevertheless, a decision must be made and should reflect the following considerations:

1. Is it necessary for the reduction ratio of the COM reports to be compatible with other microforms found in the library? This would be necessary if no additional readers or reader printers were to be purchased.
2. Does the library intend to purchase additional reading equipment for use specifically with the COM output? If so, the higher reduction ratios may be more appropriate.

3. An alternative is to purchase readers with tri or dual lenses. This would allow the library to take advantage of the lower production costs associated with higher reduction rations and, at the same time, use the readers for non-COM applications.
4. The higher the reduction ratio the lower the production, duplication and distribution costs.

SILVER, DIAZO OR VESICULAR FILM

A final decision required at this point is the type of film that will be used for the working copies. It is assumed that the COM master will be silver-halide film. Given the controversy surrounding the use of vesicular film in libraries many librarians might well be apprehensive about using anything other than silver film. There are a number of factors that should be taken into consideration:

1. Is archival quality required for working copies? Generally, archival quality is not required as a result, Diazo and Vesicular film are commonly used for working copies.
2. The cost of the duplicates is an important consideration for most libraries. The highest costing film is silver, followed by Vesicular with Diazo being the least expensive.
3. Scratch resistance is an important factor when the library wishes to retain a high quality image under heavy use. Silver film is easily scratched and is not recommended. Diazo and Vesicular stand up relatively well under heavy use.
4. The ability to reproduce film or produce high quality prints may be important. All of the films produce high quality prints. However, Vesicular is not recommended for film-to-film duplication.

SELECTING THE COM SERVICE BUREAU[4,5]

Few if any libraries will have a large enough volume of COM work to justify a COM recorder. Most libraries will be faced with the prospect

of dealing with a service bureau. This is a company set up to take a customer's computer tapes and produce original and duplicate COM output. They may also have a consulting service that will help you set up your COM system. There are a number of important considerations in selecting a service bureau.

1. What type of consulting service will they provide? Will they work with your programmer to see that the proper tape formats are provided? Can they assist in the overall design of the system providing you with the information required to make the decision noted earlier? The wider the range of assistance provided, the better the working relationship is likely to be.
2. Can the bureau provide the turnaround time to meet your needs? Do you require overnight service or can you wait several days? Will the bureau provide the same service for small library applications as it does for its larger customers or will it do your work when time permits?
3. Does the bureau have adequate backup facilities, in case of breakdown or overload? If not, can you afford to wait several days until the system is operating again.
4. What software support will be provided by the bureau and what will be required of the library? Does the software provide for the use of the desired retrieval techniques? Is the software required compatible with the equipment of other bureaus? Most large service bureaus are equipped to handle standard print image tapes. If yours is not, the costs of conversion to COM could be increased substantially.
5. Does the bureau provide adequate security against loss of material and the protection of confidential information?

6. Is the bureau quality control conscious? Does its out-put meet government or industry standards? If a problem does arise will they be willing to correct it?
7. Does the bureau have the facilities to produce the kind of out-put you want or will you be forced to accept something less? Do you have special needs in terms of the type of film, type fonts, special foreign language characters, retrieval codes, graphics, form overlays or reduction ratio?
8. Are the costs competitive with other service bureaus in the area?
9. What are the present users' experiences? After you have defined your needs, and throughly checked out the bureaus capabilities, check with other customers. Compare your needs with theirs and see how theirs are being met.

PRACTICAL DECISIONS

Clearly the number and complexity of the decisions required when considering COM applications indicates a need for well defined objectives. After some deliberation, the library staff identified the following conditions which had to be met by the system selected: 1) The system would have to be flexible enough to allow for the widest possible dissemination of library reports. within and outside the university environment; 2) The system had to be easy to use with a high probability of acceptance by the library staff and patrons; 3) It must be easily integrated into existing library and university routines; and 4) It must reflect a maximum cost savings.

MICROFICHE

Microfiche was chosen because it was clearly the most flexible and met all of the objectives listed above.[4] The library was already heavily committed to microfiche both in its purchase of commercially available microfiche and in its local-production facilities. The library also had an active program

of providing free microfiche duplication to all library patrons. The ability to provide local fiche-to-fiche duplication and dissemination of library reports was considered a logical extension of this service.

The availability of microfiche readers within the library and in other locations on campus was also an important consideration. Given the limited funds available for purchasing microform equipment, it was not possible to justify the purchase of specialized readers for use only with COM reports. Microfiche readers, however, could be purchased relatively inexpensively and could also be used to view the extensive microfiche collections already in existence as well as COM reports.

Another reader consideration was the availability of high quality portable readers which could be used for individual viewing or for projection in classroom situations. Checkout of microfiche and portable microfiche readers was already a heavily used service and it was felt that COM reports would easily fit into this pattern.

The question of user acceptance was an important consideration; however, the staff did not feel that any problems would be encountered. The university community was already heavily involved with microfiche and the use of COM reports would provide few additional user problems. The library staff has always maintained a philosophy that it was their responsibility to provide self-instructional materials for using microforms equipment and it was the responsibility of the patron to learn through self-instruction.[6]

In practice, this philosophy has worked extremely well with all media equipment. Although equipment is scattered throughout the library, very little staff time is required for instructional purposes.

The question of file integrity was also an important consideration, particularly in relation to reader stations used by library patrons. The staff felt that it would not be a serious problem for several reasons;

1) The number and size of the COM reports were relatively small. The largest consisting of only 36 fiche; and 2) The fact that COM reports would be used only as a supplement to existing access points to the collection. In practice, file integrity has not proved to be a significant problem. The use of microfiche does require that someone check the various reader stations periodically to determine if fiche are out of order or missing. It should be emphasized, however, that the library does not rely solely upon any of its COM reports for access to the collection. If the library should for example, decide to replace the card catalog with microform catalog, the question of file integrity would need to be re-evaluated.

REDUCTION RATIO

The second decision was to adopt 42x as the reduction ratio. This was clearly a compromise decision. On the one hand the optimum cost savings could be had at 48x. On the other hand most of the existing fiche readers were set up to read 20x and 24x microfiche. Tests with staff members and patrons indicated that 42x fiche could be read on existing readers and would be acceptable in situations where prolonged use was not required. Use of 42x would clearly provide the greatest exposure to COM and at the same time require the smallest investment. Coupled with this decision was another to limit future purchases of fiche readers and reader-printers to those with dual lenses.

IMAGE POLARITY

The decision to use negative as opposed to positive fiche was based upon the factors discussed earlier; 1) Reduced glare on the screen; 2) The fact that film defects were less noticable; 3) The desirability of producing positive print copies from the microfiche; 4) The fact that our microfiche masters were silver negatives and thus would produce negative Diazo duplicates.

TYPE OF FILM

Silver film was, of course, chosen for all masters. Since the library already had duplicating capability for producing Diazo microfiche, this film was chosen for all duplicates.

LIBRARY APPLICATIONS

PUBLIC CATALOG INDEX SET

This is a truncated listing of approximately 150,000 cataloged titles in the library collection. In an attempt to keep the report manageable each title is limited to a single 128 character line of truncated data. Each line contains the author (36), title (6), call number (3), collection code (1) and copyright or publication date (2). Although the data remains constant the set is produced in three sections. One arranged alphabetically by author; a second arranged alphabetically by title and the third in call number sequence.

The set is cumulated and produced annually with cumulated supplements issued bi-monthly. Copies are distributed to six index stations within the library, ten campus locations outside the library and to major regional networks. Copies are also made available on a demand basis to library patrons and to other libraries.

PERIODICAL HOLDINGS

This report is a listing of all periodicals held by the library. It consists of a title, title change (if any) and library holdings. Distribution is the same as that for the Public Catalog Index Set.

FILM CATALOG

This is a listing of approximately 1,000 films owned by the library. It is produced in three sections: 1) An alphabetical listing by title which includes an annotation, running time, sound, color, production date, producer, and distributor; 2) A Library of Congress subject index; and 3) A keyword-out-of-context title index.

The catalog is produced on a bi-monthly basis. Distribution is similar to the Public Catalog Index Set.

VIDEOTAPE CATALOG

A catalog of videotapes produced for the University of Wisconsin system. It is a listing of over 1,500 videotapes available within the University system. As with the film catalog it contains three sections, an alphabetical listing of videotapes by title which includes an annotation, running time, intended audience, color, date recorded, producer, and title of video tapes within a series. It also has a Library of Congress subject index and keyword-out-of-context title index.

WISCONSIN PUBLIC DOCUMENTS: CUMULATED KEYWORD TITLE AND PERSONAL AUTHOR INDEX

This is an index to over 5,000 Wisconsin public documents issued between 1968 and 1974. The existence of this particular index was made possible because of the librarys' experience with COM. Lack of a cumulated index of Wisconsin documents had long been a barrier to their use. Unfortunately, the production and distribution of a 1,000 page index was beyond the limited resources available for such a project. Although the library had the experience and computer programs necessary for generating the index, high production costs coupled with uncertain demand had prevented development of the project. However, production and distribution using COM made the index feasible and economically sound. The Index is cumulated annually and sold to interested libraries.

The library is currently investigating the feasibility of converting additional reports to COM.

UNIVERSITY APPLICATIONS

University of Wisconsin-Stout was, perhaps, unique in that the library developed the first COM applications within the University. This provided an all too rare opportunity for the library to have major impact upon

university decisions. The library staff immediately began working with other university offices to identify potential COM applications. The rationale for this was threefold: 1) It was clearly good public relations for the library and indicated to the university administration that the library staff was closely following new technological developments; 2) It provided an opportunity for the library to insure that COM applications within the university were compatible; and 3) The more COM applications developed the more interest there would be in purchasing additional readers. This in turn would greatly expand the number of reader stations available for library use.

This program has been very successful. The Business Office, Institutional Research and Registrar are all producing and distributing reports on COM. As a result of these activities, the business office, student services and all of the academic schools have purchased dual lens microfiche readers. In addition, a proposal has been made to provide each academic department with readers. The library, working in conjunction with student housing, also secured a title 6-B grant to provide dual lens microfiche readers in each of the residence halls.

CONCLUSION

There is little doubt that COM has proved to be a powerful tool for the production and distribution of library information at relatively low cost. Work with other University offices has provided additional reader stations throughout the University, thereby increasing the potential for library service. Every indication points to increased use of COM at the University of Wisconsin - Stout.

REFERENCES

1. D.R.G. Buckle and Thomas French, "The Application of Microform to Manual and Machine Readable Catalogues." Program 6:187-203 (July 1972).

2. Kenneth J. Bierman, "Automated Alternatives to Card Catalogs: The Current State of Planning and Implementation," Journal of Library Automation, 8:277-298 (December 1975).

3. "Michigan Public Libraries Converting to COM; Lower Cost a Major Factor," Advanced Technology Libraries, 5:1-2 (January 1976).

4. George H. Harmon, "A Service Bureau-How to Select One," Journal of Micrographics, 8:135-137 (January 1975).

5. S. Arnold Kober, "What to Look for in a Com Service Bureau." Journal of Micrographics, 9:187-190 (March 1976).

6. Philip Schwarz, "Learning to Use Microform Equipment," Microform Review, 4:262-266 (October 1975).